Forces and Motion [2nd grade]

Trinity University

Canyon Ridge Elementary School (San Antonio, Tex.)
Stage 1: Desired Results

Understanding

Students will understand that...

- All machines are forms or combinations of six simple machines (inclined plane, lever, pulley, screw, wedge, wheel and axle).
- Simple machines are tools that make work easier and have greatly affected how we live today.

Essential Questions

1) How can simple machines make work easier?

2) How would life be different if we didn’t have one or more simple machines?

Vocabulary

force
friction
inclined plane
lever
pulley
screw
wedge
wheel and axle
work
energy
attract
magnet
magnetic field
magnetic pole
magnetism
north pole
repel
south pole

Knowledge & Skill

(NEISD scope & sequence; TEKS; Core; etc.)

TEKS:

2.1 Scientific Processes. The student conducts classroom and field investigations following home and school safety procedures.

2.2 Scientific Processes. The student develops abilities necessary to do scientific inquiry in the field and the classroom.

2.2B Plan and conduct simple descriptive investigations.

2.2C Compare results of investigations with what students and scientists know about the world.

2.3 Scientific Processes. The student knows that information and critical thinking are used in making decisions.

2.5 Science Concepts. The student knows that organisms, objects, and events have properties and patterns.

2.5A Classify and sequence organisms, objects, and events based on properties and patterns.

2.6 The student knows that systems have parts and are composed of objects.

2.6A Manipulate, predict, and identify parts that, when separated from the whole, may result in the part of the whole not working, such as flashlights without batteries.

2.6B Manipulate, predict, and identify parts that, when put together, can do things they cannot do by themselves, such as guitar and guitar strings.

2.7 Science Concepts. The student knows that many types of change occur.

2.7A Observe, measure, record, analyze, predict, and illustrate changes in size, mass, temperature, color, position, quantity, sound, and movement.

2.7C Demonstrate a change in the motion of an object by giving the object a push or pull.
## Stage 2: Assessment Evidence

Performance Task:
- Students will create their own simple machine. (Invention Convention)
- Students identify one thing in life that would be different if we had never discovered this machine. Present to class.
- Test on simple machines
- Students will identify the type of energy each object produces in journal form
- Group experiment called “Electric Breakfast” (static electricity). Students will produce a graph to show results.
- Class will produce a graph to show understanding that sound is created by air passing over the vocal chords. (“A Real Humdinger”)

Other evidence:
(querues, tests, academic prompts, etc.

## Stage 3: Learning Activities

(Steps taken to get students to answer Stage 1 questions and complete performance task)
- Classroom rotations to demonstrate/experience the six simple machines.
- Observe and experiment with different types of energy to identify, “What is work?” (heat, light, sound, electricity, and motion)
- Students will interact with a variety of rough and smooth surfaces that demonstrate different amounts of friction.
- Science Lab sound experiences.
- Students match like sounds to each other.
- Technology activity to review vocabulary.

Self-Assessments:

Related Literature:

- Back and Forth by Patricia J. Murphy
- Experiments with Magnets: A True Book by Salvatore Tocci
- Forces Around Us by Sally Hewitt
- Push and Pull by Patricia J. Murphy
- Simple Machines by Allan Fowler
- What is a Plane? by Lloyd G. Douglass
- What is a Pulley? by Lloyd G. Douglass
- What is a Screw? by Lloyd G. Douglass
- What is Friction? by Lisa Trumbauer
- Mickey’s Magnet by Franklin Branley
- Mike Mulligan & His Steam Shovel by Virginia Burton
- Alexander & the Wind-up Mouse by Leo Lionni

Other Evidence, Summarized

Related Media:

- Helen Keller
- Bill Nye